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IN THE

Supreme Court of the United States

OCTOBER TERM, 1957

No. 347

EUPHIME V. BERESLAVSKY, *Petitioner*

v.

THE UNITED STATES, *Respondent*

PETITION FOR A WRIT OF CERTIORARI TO THE COURT OF CLAIMS OF THE UNITED STATES

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INDEX

	Page
Opinions Below	1
Jurisdiction	2
The Question Presented	2
Statemen. of the Case	2
Reasons for Granting the Writ	8
	6

CITATIONS

Graver Tank and Mfg. Co. Inc. v. Linde Air Products Co., 339 U.S. 605, 85 USPQ 328 ..... 9, 16, 17

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Petitioner, Euphime V. Bereslavsky, prays that a writ of certiori issue to review the judgment of the Court of Claims of The United States entered on May 8, 1956 in a case there entitled "Euphime V. Bereslavsky, Plaintiff-Petitioner v. The United States, Defendant-Respondent, Docket No. 48,722."

OPINIONS BELOW

The opinion of the Court of Claims sustaining the validity of the patent is printed in the certified record and in the nine copies of the stipulated evidence and other documents printed for the Court of Claims, filed

herewith (CR and R 1)* and is reported in 129 C.Cls. 427, and 103 USPQ 323.

The opinion of the Court of Claims holding the patent not infringed, and its judgment dismissing the petition are printed in the certified record and the printed record (CR and R 57) and reported in 113 USPQ 342.

The judgment of the Court of Claims was entered May 8, 1957.

JURISDICTION

The jurisdiction of this Court is invoked under Sec. 28 U.S.C. Sec. 1255(1).

QUESTION PRESENTED

1. Whether infringement of a claim to a composition of matter is avoided by the substitution for a part of the principal novel ingredient of the claim of other substances, known at the time of the infringement to be equivalents of the specified substance?

2. Is not such substitution immaterial to the fact of infringement and pertinent only to the extent of the infringement, particularly where the claim contains no quantitative limitations?

STATEMENT OF THE CASE

Sometime prior to 1925 Mr. Thomas Midgley, Jr., discovered that the additions to motor fuels such as gasoline of small quantities of tetra ethyl lead made it possible to employ higher compressions in so-called low

* The printed record below contains all the papers of the certified record and in addition the stipulations of agreed facts which were submitted in lieu of oral testimony. The certified record contains 67 pages. These first pages of the printed record are the same, with additional pages.

compression internal combustion engines without causing the engine to knock. He obtained a patent on his discovery No. 1573846 dated February 2, 1926. Tetraethyl lead, however, is a poison and in 1925 there was much agitation as to whether its use in motor fuels would constitute a public hazard which should not be permitted. To meet the possible contingency that the use of tetraethyl lead would be prohibited by law, the Ethyl Corporation, owned jointly by the General Motors Corporation and Standard Oil of New Jersey, employed the petitioner here to develop a substitute for tetraethyl lead which would not be open to that objection. In the course of that development petitioner discovered that mesitylene, a high boiling hydrocarbon of the aromatic series and some of its compounds possessed anti-knock properties and the patent in suit was taken out by the Ethyl Corporation based on that discovery. The patentee's discovery was not used commercially by the Ethyl Corporation because it was successful in preventing the enactment of legislation prohibiting the use of tetraethyl lead and as tetraethyl lead was the best and cheapest anti-knock additive for internal combustion engines of that period it continued to be used by practically all the oil companies as the sole anti-knock additive for the so-called high test gasoline.

The situation remained unchanged until World War II. The wartime necessity for high speed long range aeroplanes resulted in the development of internal combustion engines operating at higher compressions than theretofore used and it was found that tetraethyl lead alone could not be used in sufficient quantity to prevent the knock in these engines of high compression ratios because of its corrosive effect on the

metal of the engine parts. The Government and the oil companies were therefore forced to resort to the use of additional additives to obtain a fuel which would meet the performance requirements of the new engines. Some other additives had already been developed in the interval between the patentee's discovery in 1925 and the beginning of World War II. Such additional additives were not, however, available in the quantities required and much effort and money were expended in an effort to find other additives which could be obtained in the required quantities. These efforts were partially successful and one such additive so discovered was cumene, which is also a high boiling hydrocarbon of a series different from the series to which mesitylene belongs. The discovery of the process for producing cumene was regarded a notable achievement:

> The book entitled "Aviation Fuels and Their Effects on Engine Performance," previously identified as Exhibit H, on page 38 states that cumene is used in aviation gasoline, but that its high boiling point (306° F.) 152.2° C. limits the amount which can be used. It states on page 38 that cumene has been of great value in relieving the critical shortage of grade 100/130 fuel but seems to be somewhat undesirable owing to its high boiling point which tends to produce uneven distribution of the fuel-air mixture to the various cylinders of aircraft engines. (R. 108)

Cumene is less effective than mesitylene by the Government's own rating: Cumene 100/280; Mesitylene 115/330.

Even with the manufacture of cumene and the other separately obtainable additives to the extent of the

available and obtainable facilities there was still a shortage of anti-knock additives and the oil companies were required to direct their research toward the production from petroleum of concentrates of high boiling aromatics to provide a sufficient quantity of aviation gasoline of the required antiknock rating.

16: There was no directive from the Petroleum Administration for War to include mesitylene as a specific component in Sun Oil Company's gasoline. Toward the end of 1942 there was a large demand for aromatic compounds, and the U. S. Government indicated to all refiners that they should maximize their production of that type of compound. A sufficient quantity of benzene, toluene, ethyl benzene, xylene, cumene and BTX fractions constituting the separately added aromatic ingredients specified in (d) of paragraph 12 of this stipulation were not available on the market. The Government appealed to each refiner to try to bake, by any processes they could devise, any aromatic stocks which would extend the possibility of using more aromatics in aviation gasoline and thereby making more aviation gasoline. The addition of the CTC base, namely, aromatic mixture (e) of paragraph 12 of this stipulation, prepared as outlined in U.S. patent 2,430,096, appended hereto as part of Exhibit K, was the Sun Oil Company's way of getting the largest yield of aromatics coupled with high octane number. (R. 105-6)

The act of infringement charged here is the use of this CTC mixture as an anti-knock additive in high octane aviation gasoline manufactured for the Government by the Sun Oil Company. The other oil companies, notably the Standard Oil of New Jersey and the Standard Oil of New York also, pursuant to the

requirements of the Government, developed concentrations of high boiling aromatics similar to the Sun CTC mixture and used such mixtures in high octane aviation gasoline manufactured by them for the Government.

When the manufacture of these concentrations of high boiling aromatics came to the attention of the inventor, to whom the patent in suit had been reassigned by the Ethyl Corporation, he called the patent to the attention of the oil companies above mentioned and charged them with infringement of the patent on the ground that these concentrates contained a substantial quantity of mesitylene and that mesitylene had the highest octane rating (that is, anti-knock capacity) of any of the particular high boiling hydrocarbons making up the mixture. The oil companies took the position that the patent in suit was invalid for several stated reasons and also that the patent was not infringed because the amount of added mesitylene in any given unit of gasoline was small and also because the mesitylene was only one part of the hydrocarbon mixture making up the concentrate and that the patent was limited to the addition of mesitylene as an isolated compound.

Suits were brought against the several oil companies in 1944, but at the request of the Government the prosecution was stayed until after the war. Plaintiff was permitted to proceed with the several suits in 1946 and had proceeded in the suit against the Sun Oil Company by way of depositions to the point where the operation of the Sun Company in the manufacture of its CTC mixture and its use in aviation gasoline supplied to the Government were all of record. Before

the evidence in the other cases was completed the Standard Oil of New Jersey brought a motion in the District Court in Baltimore where the suit was pending to dismiss the action on the ground that petitioner's remedy was exclusively in the Court of Claims under the provisions of U.S.C. Title 28, sec. 1948. This motion was granted by the District Court and its decision was affirmed by the Court of Appeals, and this action in the Court of Claims was filed June 25, 1948.

The Government has not questioned its liability and upon joint motion of the parties, the issue of validity was tried separately in advance of the issue of infringement. The facts pertinent to the issue of validity were stipulated. The Court of Claims found claim 1 of the patent in suit—the only claim sued on—valid, and in its opinion the Court (CR and R 21) also expressed its opinion as to the nature of the patentee's discovery and the construction to be placed on the claim language to distinguish it from the prior art. The case was thereupon remanded to the Commissioner for findings on the question of infringement.

The parties were again able to stipulate the pertinent facts, the stipulation (R. 91) including all the facts which either party regarded as proper for consideration on the determination of that issue. The Court in its opinion rendered May 8, 1957, held that the patent was not infringed by the addition of the CTC mixture to the aviation gasoline in which it was used because:

> Gasoline produced from oil whenever found, except in two places, has a certain amount of mesitylene in it. Plaintiff discovered that the addition of more mesitylene to it would prevent a gasoline engine from knocking. That was his invention.

Mesitylene is one of the aromatic hydrocarbons; xylene is another. Before Bereslavsky's patent, Taber and Essex had discovered that the addition of xylene to gasoline would prevent knocking; but we held this patent did not anticipate Bereslavsky's patent, because it emphasized xylene, whereas Bereslavsky emphasized mesitylene.

Now, defendant has produced a mixture which contains some mesitylene, but no more than is normally found in natural gasoline produced by distillation, cracking, etc., with a minor and insignificant exception, now to be stated.

To the gasoline, defendant added an aromatic mixture, called CTC, which contained aromatic hydrocarbons, most of which had antiknock properties in varying degrees, as set out in finding 20. In volume this mixture was 6.85 per cent of the total. Only 5.25 per cent of this 6.85 per cent was mesitylene. Thus, mesitylene in defendant's product was only 0.36 per cent of the total volume. The specifications of plaintiff's patent called for mesitylene of from 5 to 20 per cent of the total.

Thus, it appears that the presence of mesitylene in defendant's mixture was merely incidental. The trial Commissioner, after careful analysis of defendant's mixture and comparison of it with plaintiff's invention, concluded: "Its amount * * * was far too small to produce the result disclosed and intended by the patent in suit." We thoroughly agree. (CR and R. 51-2)

REASONS FOR GRANTING THE WRIT

1. The Court of Claims has decided a specific question of patent law which has not been but should be decided by this Court.

2. The decision of the Court of Claims on the question of infringement is in conflict with the

general rules governing the interpretation of patent claims as stated by this Court in its recent Opinions, particularly Graver Tank and Mfg. Co. Inc. v. Linde Air Products Co., 339 W.S. 605.

So far as we are aware this Court has not decided the specific question of infringement presented here. As it stands the decision of the Court of Claims creates a "twilight zone" which will result in much confusion in the interpretation of the claims of patents directed to compositions of matter.

The Court of Claims has decided that because the use complained of is on a much smaller scale than in the specific example contained in the patent there is no infringement. The patent (CR and R p. 6) gives as an example the addition of mesitylene or its stated compounds sufficient to raise the operating pressure 20 pounds. The compression ratio of engines of that day was 4 to 1 (R. 84), that is an operating pressure of 4 times atmospheric pressure of 15 pounds or 60 pounds. The anti-knock rating of the fuel commonly used at that time was 60 (R. 80). An increase of 20 pounds would be an increase of 33 1/3 per cent of the anti-knock rating or from 60 to 80.

The opinion states that "The specifications of plaintiffs patent called for mesitylene of from 5 to 20 per cent of the total." The patent specification contains no such statement. The Court is no doubt referring to the statement of the patentee included in paragraph 21 of Stipulation 2 (R. 113).

The Court in its Opinion goes on to say, "Its amount [the mesitylene] was far too small to produce the results disclosed and intended by the patent in suit." This can only mean that the patent is limited to an

amount of mesitylene which will increase the octane rating to an extent not *far smaller* than 33-1/3 per cent.

This interpretation of the patent is quite inconsistent with the Court's findings as to the meaning of the patent in its opinion sustaining the claim as valid.

It is also suggested that plaintiff's claim is fatally vague and indefinite, in that it does not specify to those skilled in the art the proportion of mesitylene to be used. We think this suggestion is well answered by plaintiff's brief, on page 16. It is there stated:

> The patentee's discovery is not concerned with proportions. Like any other antiknock additive, the amount used is determined by the result desired. If it is desired to render a fuel suitable for an engine having a 6 to 1 compression ratio effective in an engine having an 8 to 1 compression ratio, a greater amount will be added than if it is desired to make the fuel suitable for an engine having a 7 to 1 compression ratio. *.* *. (CR and R 24)
>
> * * * * *
>
> 14. While the patent in suit states, by way of an example, 20 grams of diamino-mesitylene added to 1 gallon of gasoline, the patent is not limited to any specific proportionate mixture of mesitylene with gasoline, nor is the claim in suit in any way limited to any proportionate mixture. (CR and R 32)

It would seem quite unlikely that the Court meant that there was no infringement because the *desired* increase in octane rating was small and a correspondingly small addition of mesitylene was used. Yet this is the apparent meaning the Court's ruling.

Perhaps the Court characterized the addition of the mesitylene in the CTC mixture as a "minor and insig-

nificant exception" and merely "incidental" because the *amount* of mesitylene in the CTC mixture was not so large as some of the other compounds having anti-knock properties.

The formula of a typical lot of aviation gasoline is given in Finding 25 (CR and R 65) as follows:

Mostly straight run gasoline	6.00
Catalytically cracked gasoline	44.00
Alkylate and other isoparaffins	36.50
Separately added benzene, toluene, ethyl benzene, xylene, cumene and BTX fraction	6.50
Aromatic CTC mixture containing about 68 per cent aromatics	6.85
Tetraethyl lead	.125

The actual composition of each lot varied depending on the availability of the several components. This was particularly true of the added aromatics, items 3 and 4, and to aid the refiners in blending the gasoline so as to obtain the desired octane rating the government furnished the refiners with a tabulation of the blending values of the various aromatics used as additives. (Finding 11, CR and R 56)

The aromatics in the CTC and their blending values are as follows:

Aromatics	Blending Values	
	F[3] Octane Number	F[4] Index Number
Toluene	0	250
Ethyl benzene	102	250
M-Xylene	105	265
P-Xylene	105	265
O-Xylene	85	−15
Ethyltoluene	104	245
Mesitylene	115	330
Pseudocumene	85	60

The F^3 octane number is the lean mixture blending value and the F^4 index number is the rich mixture blending value.

The ethyl-benzene and the xylenes are C_8 aromatics and the ethyl toluene, mesitylene and pseudocumene are C_9 hydrocarbons. As will be noted one each of the C_8 and the C_9 aromatics has a blending value below the 100/130 requirements and would reduce the blending value of the CTC mixture as a whole but the relative quantities were such that the mixture as a whole served its intended purpose of supplementing the aromatics of high blending values which were available as isolated compounds.

> The content of any knock-suppressant of the CTC base, of which mesitylene is one of a number, improved the antiknock characteristics of the resultant motor fuel to the extent that it was present in the resultant fuel. If the aviation gasoline to which such mixture was added should fall short of meeting specifications, another or other antiknock agents would have to be added in quantity to obtain the specified octane value of the 100/130 aviation gasoline. This could be done by adding a little more of one of the above-mentioned aromatics, or by adding somewhat more of the CTC base, or by slightly increasing the amount of alkylate. (CR and R 59)

The average C_8 content of the CTC mixture was 26.6 per cent and the average C_9 content was 29.5 per cent. (CR and R 57) One complete analysis of a sample of CTC mixture was made by the Sun Oil Co. The sample selected had a very low C_9 content and a very high C_8 content. According to this analysis 26.3 per cent of the C_9 content was mesitylene (CR and R 58) but with its much higher blending value its contribu-

tion was quite equal to the other C_8 and C_9 components as will be evident from a very simple calculation.

$26.3\% \times 29.5\% = 7.75\%$ mesitylene in average sample.

The blending value of mesityiene is 115/330
Excess over required 100/130 is 15/200
Additive value of 7.75 units of mesitylene
F-3 rating $7.75 \times 15 = 116.25$
F-4 rating $7.75 \times 200 = 1550.00$

Three of the four C_8 aromatics have plus blending values. The stipulated facts do not include the relative amounts of the three but taking three quarters of the total C_8 content as effective the per cent of the three would be

$75\% \times 26.6\% = 19.95\%$.

Giving all the three C_8's the highest rating their blending value is 105/265

Excess over required 100/130 is 5/135
Additive value of 19.95 units of the C_8 compounds
F-3 rating $19.95 \times 5 = 99.75$
F-4 rating $19.95 \times 135 = 2693.25$

So the mesitylene as an anti-knock additive is more effective than the entire C_8 group in raising the lean mixture rating and as a rich mixture additive its contribution is more than 50 per cent of the combined contributions of all three C_8's.

The Court's ruling that the addition of mesitylene in the CTC was a "minor and insignificant exception" in the blending of the 100/130 aviation gasoline and was "incidental" cannot be based on a comparison with the other constituents of the CTC mixture.

The opinion gives no other clue as to the Court's reasons for holding that the addition of mesitylene in the form of a constituent of the CTC base does not infringe the claim in suit.

Turning to the findings of fact, Finding No. 27 (CR and R 66) may recite the alleged facts on which the opinion is based. We say "alleged" facts because the finding as to the mesitylene content of the Taber and Essex fuel finds no support in the patent itself (R. 83) and is contrary to Finding 23 (CR and R 55, 56) which contains the following statement.

> There is no evidence of the mesitylene content of commercial solvent naphtha of 1924, the year during which the Taber and Essex patent issued. Using the 1940-1945 data on naphtha analysis, fuel prepared under the teachings of the Taber and Essex patent would contain approximately 2 to 9 per cent incidental mesitylene.

The composition of coal tar distillates made in 1940 furnishes no guide to the composition of the distillates available in 1924 as is evident from the Finding 8 in the opinion of the Court on the Question of Validity.

> 8. No one of the materials, petroleum, coal tar, gasoline, or kerosene is a simple chemical compound. Each is a mixture of a great many compounds, principally hydrocarbons. The composition of petroleum varies from oil field to oil field, and the composition of gasolines and kerosenes made therefrom varies, depending, among other factors, on the field from which the petroleum comes, the particular process by which the gasoline or kerosene is made, and even on day-to-day operation of the same distillery, cracking, or blending plant. Similarly, the composition of coal tars varies from plant to plant as the raw materials and the processes to which they are submitted vary. (CR and R 28).

The Taber and Essex patent must speak for itself. It is directed to a motor fuel consisting of a mixture of gasoline and a coal tar distillate consisting "prin-

cipally of xylenes together with ethyl benzol, mesitylene and analogous benzol derivatives."

The patent says nothing about "knocking" but the described performance of the fuel we know now to be due to the anti-knock value of the M-xylene and P-xylene and the mesitylene to whatever extent it was present in the mixture. The coal tar distillate described in the Taber and Essex patent is itself a fuel and constituted the major portion of the mixture—up to 90 per cent—and its unknown mesitylene content has exactly the same significance as the unknown mesitylene content of gasoline, kerosene, and other fuels made from petroleums and coal tars containing mesitylene.

It is idle to speculate as to what these unknown quantities might have been, or whether they were more or less than the mesitylene added with the CTC mixture. Prior to the patentee's discovery the presence of these high boiling constituents was regarded as a detriment rather than a benefit. The wartime investigation of the C_9 aromatics referred to in the stipulated facts (R 105) was doubtless predicated on the patentee's discovery of the high blending value of mesitylene.

Had methods of commercially manufacturing mesitylene as a separate compound in the quantities required been known, mesitylene would have been a most valuable addition to item 4 of the aviation gasoline formula (p. 11, supra). Its use as an ingredient of the CTC mixture is just as much a use of the patentees invention.

It may be that the decision of the Court of Claims is based on the theory that a patent covering mesitylene as an anti-knock additive is not infringed if other anti-knock additives are used simultaneously to obtain the desired result. This theory, if sound, is equally ap-

plicable to all the other anti-knock additives employed in blending the 100/130 aviation gasoline. If there were eight patents, each one covering one of the anti-knock additives, none of them would be infringed because the whole result was not attributable to any one patent. This theory is manifestly unsound on its face. On the contrary, all of the patents would be infringed, each to the extent that the particular ingredient to which it is directed was used in the mixture.

Ordinarily, of course, a manufacturer does not use seven or eight components which may be substituted one for the other but selects such as for economic or technical reasons have the greatest advantages. But the circumstances which occasioned the manufacture of the 99/130 and 100/130 aviation gasoline were not ordinary circumstances. As abundantly appears from the stipulated facts, the CTC concentrate was developed, not for the purpose of making a better or cheaper fuel which would meet performance requirements but in order to add to the available supply of anti-knock additives required to obtain the desired anti-knock value for the largest possible quantity of aviation gasoline. To the *extent* that mesitylene was present in the CTC concentrate its use constitutes an infringement of the patent in suit as construed by the Court.

The ruling of non-infringement is out of line with the rulings of this Court on the question of patent infringement. The most recent case of this Court in which the question of infringement is discussed is *Graver Tank & Mfg. Co., Inc.* v. *Linde Air Products Co.*, 339 U.S. 605; 85 USPQ 328.

> "In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim. If accused matter falls clearly within the

claim, infringement is made out and that is the end of it."

* * * * *

"But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system." *Graver Tank & Mfg. Co., Inc.* v. *Linde Air Products Co.*, 85 USPQ 328, 330.

The Court of Claims is a court of first instance particularly as regards questions of law. In the case at bar the facts were stipulated. There is no appeal as a matter of right from its rulings. In that respect it is a sole exception in our judicial system. Where its rulings on the stated facts are confusing and ambiguous and out of line with the weight of authority they should be reviewed by this Court.

Respectfully submitted,

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August 3, 1957